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Pasadena, California

V5 Status

Retrospective and Prognosis

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AIRS Science Processing

March 29, 2007



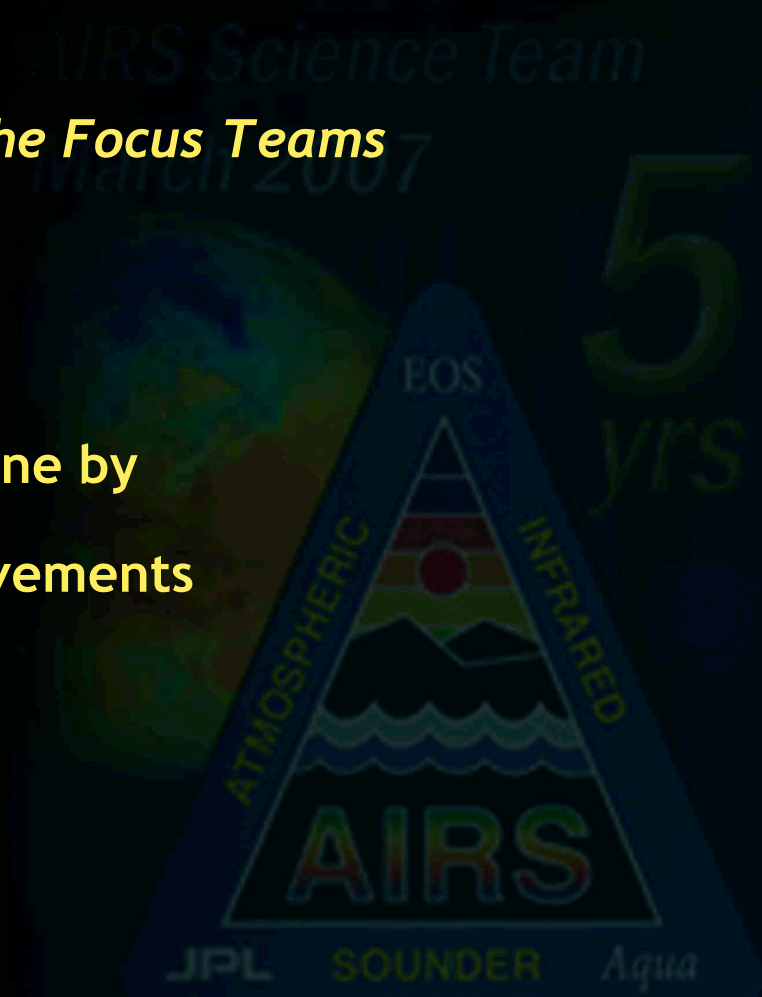


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Topics

- **V5 Goals - *AIRS Project Goals and the Focus Teams***
- **V5 Goals - *What we achieved***
- **Other Features of V5**
- **Review V5 Schedules - from ages gone by**
- **V5 - the race for last-minute improvements**
- **Current V5 Status**
- **V5 Production at the GES DISC**





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V5 Goals

AIRS Project Goals and the Focus Teams

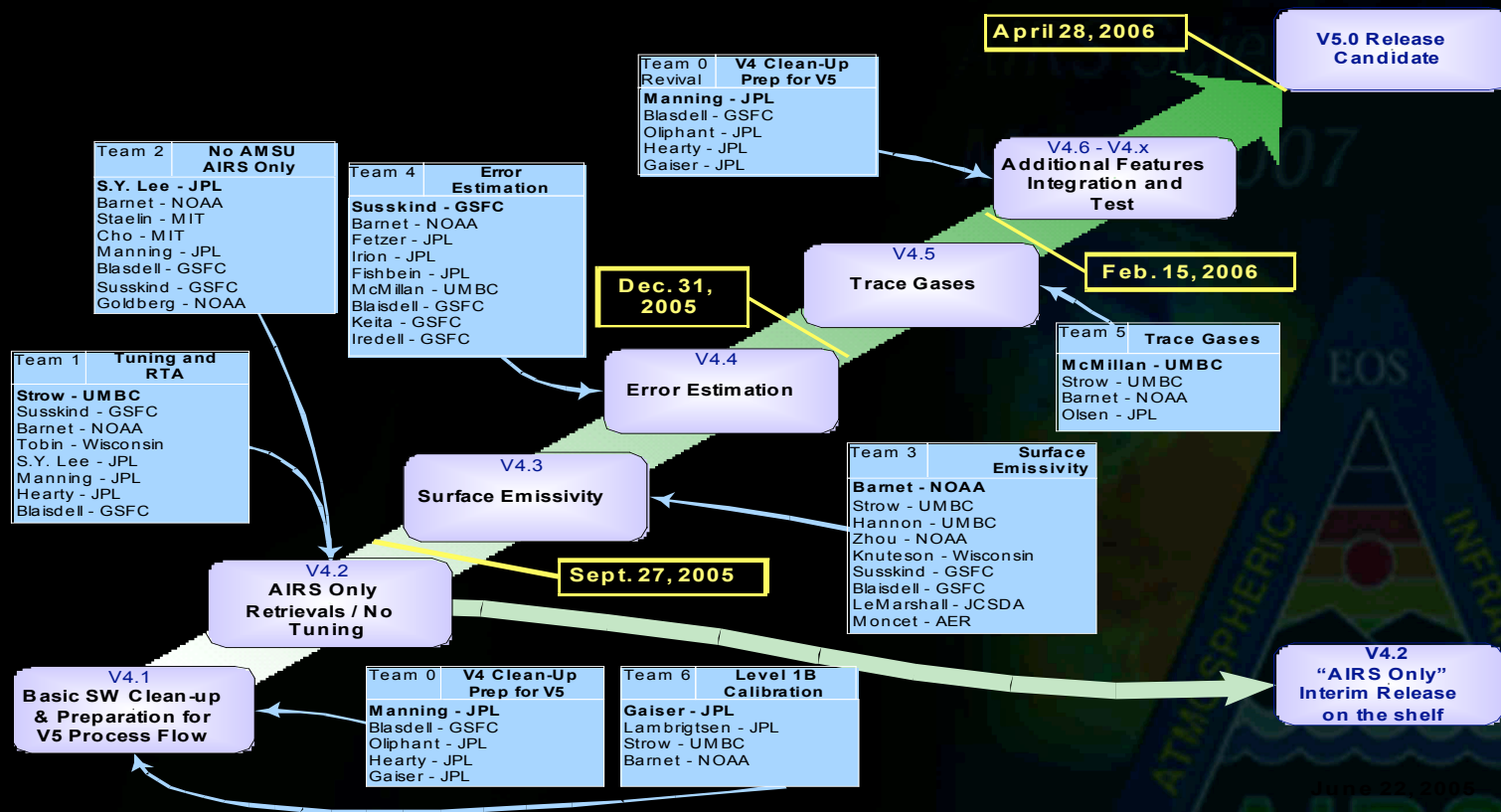
- Primary goals for V5 established at close of V4 development
- Emphasis on Improving Level 2:
 - Improved Tuning/Transmittance (RTA)
 - AIRS-Only Retrieval - *fall-back capability*
 - Improved emissivity and surface retrievals
 - Improved error estimation and Quality Control
 - Retrieval of Trace Gases
- Other Goals included:
 - Level 1 Calibration
 - General software infrastructure clean-up



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V5 Goals AIRS Project Goals and the Focus Teams





V5 Goals V5 Goals - What we achieved

- Focus Team perspective - V5 is an unqualified Success

Improved Tuning/Transmittance (RTA)	Achieved
AIRS-Only Retrieval - <i>fall-back capability</i>	Achieved
Improved emissivity and surface retrievals	Partially Achieved
Improved error estimation and Quality Control	Achieved
Retrieval of Trace Gases	Achieved
Level 1 Calibration	Achieved
General software infrastructure clean-up	Achieved

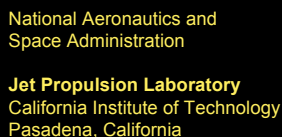


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Other Features of V5

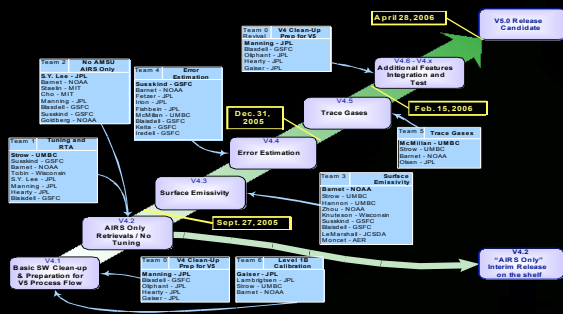
- In addition to the Focus Team work
 - there were other V5 enhancements:
 - Level 3: Quantization and other new products
 - SO₂ and Dust Flagging, integrated in Level 2 product
 - Better handling of partial granules / moon in view
 - Reduced File Sizes
 - Content of Level 2 Support and Level 3 enhanced
 - Transition to Linux environment code baseline
- Overall, V5 is a better, more robust, more stable product



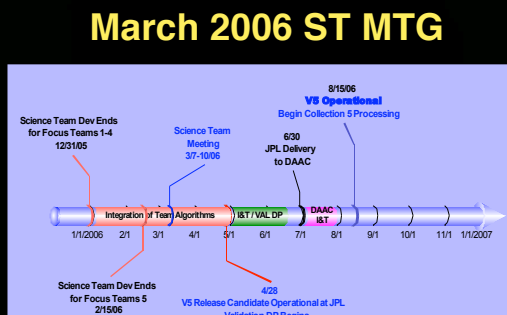
Review V5 Schedule - from ages gone by

- The planned delivery date for V5 has been revised over time
 - May 2005 ST MTG - June 1, 2006
 - Sept. 2005 ST MTG - April 28, 2006
 - March 2006 ST MTG - June 30, 2006
 - Sept. 2006 ST MTG - October 30, 2006
 - After Sept. 2006 ST MTG - December 2006

*Then, there was the
September 2006
Science Team Meeting!*



September 2005 ST MTG



September 2006 ST MTG

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And then ...

**The
Monster of
Version 5
rears its
ominous
head!**





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V5 - After the Sept 2006 Science Team Meeting

- Fix JPL cloud retrieval -Type 100 fallback
- Solve for LW emissivity - add new retrieval step
- Update CO first guess, check validity w/RTA
- CO standard product fields - bottom of atmosphere
- Incorporate RTA Version 9f (Methane bias change)
- Generate new error estimates
- Harmonizing QA Flags / Error Estimates
- H2O Saturation Water Vapor Pressure - correction
- Tropopause Height - new calculation
- Clear Flag to L2 STD Product
- L2 using Match-Up input fails in IR-Only retrieval mode
- Revert to old cloudy regression used AMSU for filtering (IR-Only retrieval option)
- Ensure enough parameters exist in STD Product to reconstruct radiances
- Finalizing our decision... what's our **Baseline Retrieval** for V5?



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Testing

- In the middle of all this... there was testing!
- The AIRS Project conducted its most comprehensive testing program to date.
 - 48-day, then 24-day focus days, a focus month
 - Verification of product data fields
 - do they meet spec?
 - are they internally consistent (Do they tell the same story?)
 - Evaluation of all standard products
 - Verification
 - Sensibility check

*This is not validation, this is verification
but it has been extremely useful.*



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V5 - the race for last-minute improvements

- V5 delivered to GSFC GES DISC - 22 December 2006
- And then ...
we completed our *extensive* testing campaign
- It was readily apparent, V5 Level 2 was not ready for prime time
Additional issues were identified!
 - Problems with ozone retrieval
 - Convergence issues - in some cases, real bugs
 - Problems with methane retrieval
 - Yield near the surface ... again
- All of these issues have been tackled now, and we have another
V5 release candidate!



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Putting things into perspective



- **Most V5 issues were resolved by December 2006**

- Level 1 stable, running at GSFC GES DISC
- Level 2 release candidate produced again
- Level 3, just a few more changes



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Current V5 Status

- **Currently running V5.0.12, our V5 release candidate**
- **We are now testing V5.0.12**
 - Produced basic build verification test set
 - Produced 8-day series, August 2005
 - Will produce full 48-day and then 24-day focus day series
 - Will produce full month, August 2005
- **We will deliver V5 in about two-to-three weeks**
- **There are still features inherent in our products**
 - Things we'd like to improve ...
but, we need to leave some work for V6



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Current V5 Status (cont'd)

- **V5 Level 1 code in production at GES DISC**
 - Impressive processing rates, sometimes reaching 30x
 - All data being archive on spinning disk (no tapes)
 - A substantial portion of Level 1 reprocessing will be completed by the time Level 2 becomes operational
 - All V5 reprocessing should be completed by late fall 2007



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V5 in a Nutshell

- The presenters in this session will impart their assessments of V5
- In the end, I feel you will agree that V5 is substantially better than:
 - V4
 - V5 as presented at the September 2006 Science Team Meeting
- V5 has been intensively tested, it is better understood, and the V5 product is better than any previous AIRS software release!!!

